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NATURAL HISTORY.

Wonderful are the works of the great Creator; and in many instances mysterious to the finite comprehension of man. For what purpose such creatures as those represented in the foregoing page, which we have copied from an engraving in the London Encyclopædia, would ever have been formed, is a question which bids defiance to the speculations of philosophy; and must remain unanswered till the veil of mortality be removed, and the light of another world be brought to bear upon the mysteries and motions of the globe we now inhabit.

The various animals represented in the engraving may be said to belong to the same class—a genus of amphibia, belonging to the order of *Reptilia*. They are, no doubt, all, *by name*, familiar to our readers. Who has not heard or read of

THE CHAMÆLEON?

> " A lizard's body, lean and long—
> A fishes head—a serpent's tongue;"

With a cylindrical, crooked tail; which can dilate and contract its size like the frog; and, if we can believe all that has been written upon it, can assume at pleasure the various colours of the rainbow. It is a native of Africa and Asia, and has been the subject of much contention among naturalists.

The head of a large chamæleon, is almost two inches long, and thence to the beginning of the tail it is four inches and a half The tail is five inches long, and the feet two and a half. The thickness of the body is different at different seasons; for sometimes from the back to the belly it is two inches, and sometimes one; for he can blow up and contract himself at pleasure. This swelling and contraction is not only of the back and belly, but also of the legs and tail. The chamæleon will continue blown up for two hours together, and then grow less and less insensibly; for the dilatation is always more quick and visible than the contraction. In this last state he appears extremely lean; the spine of the back is sharp, and all his ribs might be told; the tendons of the arms and legs might also be seen distinctly. The skin is very cold to the touch; and, notwithstanding he seems so lean, there is no feeling the beating of the heart. The surface of the skin is unequal, and has a grain not unlike shagreen, but very soft, because each eminence is as smooth as if it was polished. The head is like that of a fish, being joined to the breast by a very short neck, covered on each side with cartilaginous membranes resembling gills. There is a crest directly on the top of the head, and two others on each side above the eyes, and between these there are two cavities near the top of the head. The muzzle is blunt, like that of a frog: at the end there is a hole on each side for the nostrils; but there are no ears, nor the sign of any. The jaws are furnished with a bone in the form of teeth, of which he makes but little use, as he lives by swallowing flies and other insects without chewing them; and hence arose the vulgar notion of his living upon air, because he was never seen to eat. The form, structure, and motion of the eyes, have something very peculiar; for they are very large, being almost half an inch in diameter, of a globular figure, and stand out of the head. They have a single eye-lid like a cap, with a small hole in the middle, through which the sight of the eye appears, no bigger than a pin's head, and a shining brown, encircled by a little ring of a gold colour. But the most extraordinary thing relating to the eyes is, that this animal often moves one when the other is entirely at rest; nay, sometimes one eye will seem to look directly forward and the other backward, and one will look up to the sky when the other regards the earth. The four feet are all of equal length; but those before are turned backwards, and those behind forwards. There are five toes on each paw, which have a greater resemblance to hands than feet. They are all divided into two, which gives the appearance of two hands to each arm, and two feet to each leg; and though one of these parts has three toes, and the other but two, yet they seem to be all of the same size. These toes lie together under the skin; their shape, however, may be seen through the skin. With these paws the chamæleon can lay hold of the small branches of trees like a parrot. When he is about to perch, he parts his toes differently from birds, placing two behind and two before. The claws are little, crooked, very sharp, and of a pale yellow, proceeding but half way out of the skin, while the other half is hid beneath it. He always wraps his tail round the branches of trees, and it serves him instead of a fifth hand. Some naturalists believe the change of colour to depend upon the feelings of the animal, or upon the different degrees of heat or cold to which it is subjected. It seems similar to blushing, and is probably produced by the greater or less quantity of blood sent into the minute vessels, assisted also by the distension of their immense lungs, which, being expanded with air, render the animal nearly transparent. Previously to the chamæleon's assuming a change of colour, it makes a long inspiration, the body swelling out to twice its usual size; and, as this inflation subsides, the change of colour gradually takes place. According to D'Obsonville, the blood of the chamæleon is of a violet blue colour; the vessels and cutis yellow; the epidermis transparent: hence, he conceives, that, in consequence of more or less blood being sent to the external arteries, all the shades of colour which the animal presents may be produced.

THE ALIGATOR.

So very great is the resemblance between the aligator and the crocodile, that many naturalists suppose them to be but a variety of the same species. Others, on a closer inspection, have pronounced the American crocodile to be altogether a distinct species from the aligator of the Nile.

The alligator arrives at a size not much inferior to that of the crocodile, specimens having often been seen of eighteen or twenty feet in length. Though the largest and greatest numbers of alligators inhabit the torrid zone, the continent abounds with them ten degrees more north, particularly as far as the river Neus, in North Carolina, in the latitude of about 33°, beyond which they have not been found, which latitude nearly answers to the northernmost parts of Africa, where they are likewise found. They frequent not only salt rivers near the sea, but streams of fresh water in the upper parts of the country, and in lakes of salt and fresh water, on the banks of which they lie lurking among reeds, to surprise cattle and other animals. In Jamaica, and many parts of the continent, they are found about twenty feet in length: they cannot be more terrible in their aspect, than they are formidable and mischievous in their natures, sparing neither man nor beast they can surprise, pulling them down under water, that, being dead, they may with greater facility, and without a struggle or resistance devour them. As quadrupeds do not so often come in their way, they almost subsist on fish; and as, by the close connexion of the vertebræ, they can neither swim nor run away, but straight forward, and are consequently disabled from turning with that agility requisite to catch their prey by pursuit, therefore they do it by surprise in the water as well as by land.

THE CROCODILE.

The crocodile has a compressed jagged tail, five toes on the fore, and four on the hind feet. This is the largest animal of the genus. A young one that was dissected at Siam, an account of which was sent to the Royal Academy at Paris, was eighteen feet and a half long; the tail was no less than five feet and a half, and the head and neck above two and a half. He was four feet nine inches in circumference where thickest. The hinder legs, including the thigh and the paw, were two feet two inches long; the paws, from the joint to the extremity of the longest claws, were above nine inches. They were divided into four toes; of which three were armed with large claws, the longest of which was an inch and a half, and seven lines and a half broad at the root. The fore legs had the same parts and conformation as the arms of a man, but were somewhat shorter than those behind. The hands had five fingers, the last two of which had no nails, and were of a conical figure, like the fourth toe on the hind paws. The head was long, and had a little rising at the top; but the rest was flat, especially towards the extremity of the jaws. It was covered with a skin, which adhered firmly to the skull and jaws. The eye was very small in proportion to the rest of the body; and so placed within its orbit, that the outward part, when shut, was only a little above an inch in length, and ran parallel to the opening of the jaws. The nose was placed in the middle of the upper jaw, near an inch from its extremity, and was perfectly round and flat, being two inches in diameter, of a black, soft, spongy substance, like the nose of a dog. They had twenty-seven dog-teeth in the upper jaw, and fifteen in the lower, with several void spaces between them. They were thick at the bottom, and sharp at the point; being all of different sizes, except ten large hooked ones, six of which were in the lower jaw, and four in the upper. The mouth was fifteen inches long, and eight and a half broad, where broadest; and the distance of the two jaws, when opened as wide as possible, was *fifteen inches and a half*. The skull, between the two crests, was proof against a musket ball, which only rendered the part a little white that it struck against. The skin was defended by a sort of armour, which, however, was not proof against a musket-ball. They have no tongue, but in place of it a membrane, attached by its edges to the two sides of the under jaw. In the stomach of one of these animals, dissected before the English consul, they found the bones of the legs and arms of a woman, with the rings which they wear in Egypt as ornaments.

These animals are seen in some places lying for hours, and even whole days, stretched in the sun, and motionless; so that one not used to them might mistake them for trunks of trees covered with rough and dry bark: but the mistake would soon be fatal: for the seemingly torpid animal, at the near approach of any living creature, instantly darts upon it, and carries it to the bottom. In the times of an inundation they sometimes enter the cottages of the natives, where they seize the first animal they meet with. The crocodile, however, except when pressed with hunger, or with a view of depositing its eggs, seldom leaves the water. Its usual method is to float along upon the surface, and seize whatever animals come within its reach; but, when this method fails, it then goes close to the bank. There it waits in patient expectation of some land animal that comes to drink; the dog, the bull, the tiger, or man himself. It seizes the victim with a spring, and goes at a bound much faster than such an unwieldy animal could be supposed to do; then, having secured the creature both with teeth and claws, it drags it into the water, instantly sinks with it to the bottom, and in this manner quickly drowns it. Sometimes it happens that the creature, wounded by the crocodile, makes its escape; in which case the latter pursues it with great celerity, and often takes it a second time. In these depredations, however, this terrible animal often seizes on another as formidable as itself, and meets with desperate resistance. Combats often occur between the crocodile and the tiger. All tigers are continually oppressed by a parching thirst, that makes them frequent great rivers, whither they descend to drink. On these occasions they are seized by the crocodile, upon whom they turn with the greatest agility, and force their claws into his eyes, while he plunges with his fierce antagonist into the river. There they continue to struggle, till at last the tiger is drowned. A negro, however, with no other weapon than a knife in his right hand, and his left arm wrapped round with a cow-hide, will often venture boldly to attack this animal, in its own element. As soon as he approaches the crocodile, he presents his left arm, which the animal swallows, but as it sticks in his throat, the negro has time to give it several stabs below the chin, where it is easily vulnerable; and the water also getting in it at the mouth, which is held involuntarily open, the creature soon expires. The natives of Siam are particularly fond of the capture of crocodiles, which they take by throwing three or four nets across a river, at proper distances; so that if the animal breaks through the first, it may be caught by one of the rest. When first taken it employs the tail, which is the grand instrument of strength, with great force; but, after many unsuccessful struggles, the animal's strength is at last exhausted.

All crocodiles breed near fresh waters, though they are sometimes found in the sea. They produce their young by eggs, and for this purpose the female chooses a place by the side of the river, or some fresh water lake, to deposit her brood in. She always pitches upon an extensive sandy shore, where she may dig a hole without danger of detection from the ground being fresh turned up. The shore must be gentle and shelving to the water, for the greater convenience of her going and returning; and a convenient place must be found near the edge of the stream, that the young may have a shorter way to go. When all these requisites are adjusted, the animal is seen cautiously stealing up on shore to deposit her burden. The presence of a man, a beast, or even a bird, is sufficient to deter her at that time; and, if she perceives any creature looking on, she infallibly returns. If, however, nothing appears, she then goes to work, scratching up the sand with her fore-paws, and making a hole pretty deep in the shore. There she deposits from eighty to one hundred *eggs, of the size and form of a* tennis-ball, *covered* with a tough white skin like parchment. She takes above an hour to perform this task; and then, covering up the place so artfully that it can scarcely be perceived, she goes back to return again the next day. Upon her return, with the same precaution as before, she lays about the same number of eggs; and the day following also a like number. Thus having deposited her whole quantity, and having covered them closely up in the sand, they are soon vivified by the heat of the sun; and at the end of thirty days the young ones begin to break open the shell. At this time the female is instinctively taught that her young ones want relief; and she goes upon land to scratch away the sand and set them free. Her brood quickly avail themselves of their liberty; a part run unguided to the water; another part ascend the back of the female, and are carried thither in greater safety. But the moment they arrive at the water, when the female has introduced her young to their natural element, the male becomes their formidable enemy, and devours as many of them as he can. The whole brood scatters into different parts at the bottom; by far the greatest number are destroyed, and the rest find safety in their agility or minuteness. The eggs of this animal are not only a delicious feast to the savage, but are eagerly sought after by every beast and bird of prey. All along the banks of great rivers, for thousands of miles, the crocodile propagates in such numbers as would soon overrun the earth, were not the vulture appointed by Providence to counteract its fecundity.

THE SALAMANDER

Has a short cylindrical tail, four toes on the fore feet, and a naked, porous body. This animal has been said, even in the Philosophical Transactions, to live in the fire: but this is a mistake. It is found in the southern countries of Europe. Whilst the hardest bodies cannot resist the violence of fire, the world have endeavoured to make us believe, that a small lizard can not only withstand the flames, but even extinguish them. This lizard, which is found in so many countries of the ancient world, and even in very high latitudes, has been very little noticed, because it is seldom seen out of its hole, and because for a long time it has inspired much terror. One of the largest of this species, preserved in the late French king's cabinet, is seven inches five lines in length, from the end of the muzzle to the root of the tail, which is three inches eight lines.

It was long believed that the salamander was of one sex; and that each individual had the power of engendering its like, as several species of worms. This is not the most absurd fable which has been imagined with respect to the salamander; but, if the manner in which they come into the world is not so marvellous as has been written, it is remarkable in this, that it differs from that in which most other lizards are brought forth, as it is analagous to that in which the chalcide and the seps, as well as vipers and several kinds of serpents, are produced. On this account the salamander merits the attention of naturalists much more than on account of the false and brilliant reputation it has so long enjoyed. M. de Maupertuis, having opened some salamanders, found eggs in them, and at the same time some young perfectly formed; the eggs were divided into two long bunches like grapes, and the young were enclosed in two transparent bags; they were equally well formed as the old ones, and much more active. The salamander, therefore, brings forth young from an egg hatched within its belly, as the viper; and her fecundity is very great; naturalists have long said that she